

THYSANOPTERA ASSOCIATED WITH HORSERADISH IN ILLINOIS¹

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ABSTRACT: Twelve species of Thysanoptera were identified from horseradish grown in Illinois over a three year period. Four species were of known or potential economic importance and were recorded from other crucifers in Illinois.

The first survey of insects on horseradish in Illinois was by Petty (1955), who examined the crop from 1947 to 1954 and collected two species of Thysanoptera, *Thrips tabaci* Lindeman and *Frankliniella tritici* (Fitch). From 1976 to 1978 another study by the Illinois State Natural History Survey (INHS) resulted in the collection of 12 species of thrips.

Horseradish is a crucifer and constitutes one species. However, it has been known by at least six scientific names (Petty 1955). According to Fosberg (1966) the correct scientific name is *Armoracia rusticana* Gaertner, Meyer, and Scherbius.

METHODS

Most of the thrips were taken from the southwestern Illinois counties of Madison and Saint Clair, the largest area of commercially grown horseradish in the United States. The remainder were taken from test plots of the University of Illinois near Urbana. A total of more than 150 samples were taken from 1976 to 1978. Samples were made at least three times monthly from May to November. The number of samples containing thrips and their range of months of collection were as follows: 1976, 4 samples, May-October; 1977, 11 samples, May-November; 1978, 21 samples, June-October.

The samples were collected as leaf washes by D.W. Sherrod, Research Assistant, INHS. Each sample consisted of 10 leaves, which were placed in a plastic bag for transport. The contents of each bag were placed in a bucket 1/3 filled with water to which one or two drops of detergent were added. With a secure lid the bucket was shaken by hand. The inside of the lid and bucket walls were washed with alcohol to remove all arthropods and decrease suds. The contents of the bucket were poured onto a 100-mesh sieve, from which the arthropods were washed into alcohol and separated.

Most of the thrips were mounted in balsam by the author but many of the females of *Thrips tabaci* were preserved in alcohol. All were determined by the author except for 24 specimens determined by L.J. Stannard, Professor Emeritus, INHS. All were stored in the INHS museum.

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RESULTS AND DISCUSSION

1. *Thrips tabaci* Lindeman

This species was the most numerous and appeared throughout the growing season (Table 1). Chittenden (1919) reported the onion thrips, *Thrips tabaci*, from the following crucifers but not from horseradish: mustard, cabbage, cauliflower, kale, and turnip, which are all in the genus *Brassica* Linnaeus. In addition INHS specimens were collected from Champaign Co., Illinois, May 1933, from an unidentified crucifer of the genus *Lepidium* Linnaeus. The onion thrips has been an occasional pest of horseradish in Illinois and could invade the crop from these crucifers or any of the other 17 families in Illinois from which it has been collected according to the INHS collection.

2. *Sericothrips variabilis* (Beach)

This species was the second most numerous and had the second greatest range of collection dates (Table 1). Specimens at the INHS museum were taken from at least 16 other families in Illinois but from no other crucifers in the Midwest. The occurrence of this species on horseradish may be of no economic importance. It is especially numerous on soybeans, from which it could easily disperse to many plants.

3. Species of potential economic importance

Frankliniella fusca (Hinds), *Frankliniella tritici* (Fitch), and *Anaphothrips obscurus* (Muller), were the third, fourth, and fifth most numerous species, respectively (Table 1). Specimens of these three species at the INHS museum were collected from 17, 34, and 8 other families in Illinois, respectively. Moreover, all three species were collected from an unidentified species of the crucifer of the genus *Crambe* Linnaeus from Tippecanoe Co., Indiana, July 1971. *Frankliniella tritici* was collected from black mustard, *Brassica nigra* Koch, from Carroll Co., Illinois, July 1947, and Stephenson Co., Illinois, May 1971. At present there is no evidence that these species are of economic importance on horseradish.

4. Minor species

According to the INHS collection none of the remaining seven species in Table 1 has been collected from other crucifers in the Midwest. *Aeolothrips bicolor* Hinds is primarily predacious, occurs throughout Illinois, and could prey on other thrips on horseradish. One aeolothripid larva, too damaged to identify to species, also was collected. The remaining six species, each represented by only one or two specimens, were probably transients. Their collection sites and typical hosts (Stannard 1968) were near the horseradish sites.

LITERATURE CITED

- Chittenden, F.H. 1919. Control of the onion thrips. USDA Farmers' Bull. 1007. 16 pp.
 Fosberg, F.R. 1966. The correct name of the horseradish [Cruciferae]. *Baileya* 14:60.
 Petty, H.B. 1955. The insect pests of horse-radish in southwestern Illinois. PhD Thesis. University of Illinois, Urbana. iv + 80 pp.
 Stannard, L.J. 1968. The thrips, or Thysanoptera, of Illinois. Bull. Ill. Nat. Hist. Survey 29:215-552.

Table 1. Collection data for Thysanoptera associated with horseradish in Illinois.

Species	Adult ♀	Adult ♂	Larvae	Months of Collection	Counties of Collection
<i>Thrips tabaci</i> Lindeman	260	1	8	V-XI	C,M,S
<i>Sericothrips variabilis</i> (Beach)	49	12	1	V-X	C,M,S
<i>Frankliniella fusca</i> (Hinds)	12	0	0	V	M,S
<i>Frankliniella tritici</i> (Fitch)	6	0	0	V,VII,IX	M
<i>Anaphothrips obscurus</i> (Müller)	3	0	0	VI	M,S
<i>Frankliniella tenuicornis</i> (Uzel)	2	0	0	VI,VIII	C,M
<i>Frankliniella unicolor</i> Morgan	1	1	0	VI,IX	S
<i>Pseudodendrothrips mori</i> (Niwa)	2	0	0	VIII,X	M,S
<i>Thrips physapus</i> Linnaeus	2	0	0	V	M
<i>Aeolothrips bicolor</i> Hinds	1	0	0	V	M
<i>Pseudothrips inequalis</i> (Beach)	1	0	0	V	S
<i>Thrips winnemanac</i> Hood	1	0	0	VIII	M

V = May, VI = June, VII = July, etc. C = Champaign, M = Madison, S = Saint Clair.